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EXAMINER
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ART UNIT	PAPER NUMBER
2172	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/489,730	HARTMAN ET AL.
	Examiner	Art Unit
	HUNG Q PHAM	2172

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-51 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-51 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

1. Applicants amended claims 1-19, 21-26, 28-51 in the amendment received on 11/06/2002. The pending claims are 1-51.

Response to Arguments

2. Applicant's arguments have been fully considered but they are not persuasive.

Applicants stated that:

> *Independent claims 1 and 8 are directed toward a file or data structure. Data structures and computer programs which impart functionality when employed as a computer component are functional descriptive material. M.P.E.P. §2106(1V)(B)(1). When functional descriptive material is recorded on some computer readable medium, the material becomes structurally and functionally interrelated to the medium and is statutory in most cases. Id. A claimed computer-readable medium encoded with a data structure defines structural and functional interrelationships between the data structure and the computer software and hardware components that permit the data structures functionality to be realized and, therefore, is statutory. M.P.E.P. §2106(IV)(B)(1)(a). Accordingly, claims 1 and 8 have been amended to recite the file structure being embodied in a program storage device readable by a machine and to facilitate content adjustment. Thus, the file structure constitutes functional descriptive material, where the claims recite this material to be encoded on a machinereadable medium, which as discussed above, is statutory subject matter.*

Examiner respectfully traverses because:

Claims 1-15, 46-47, especially claims 1 and 8 is a data structure, but there is no inter-relationship description between an identifier file object and a content file object within the data structure: ***an identifier file object containing a list of content entity identifiers***

defining the content of the content object; and a plurality of content file objects, each containing a content entity identified by one of the content entity identifiers contained in said list, and ***an identifier file object containing an outline of containers and content entity identifiers defining the content and hierarchical structure of the content object; and a plurality of content file objects, each containing a content entity identified by one of the content entity identifiers contained in said list***. Therefore, the claims are non-statutory.

Applicants stated that:

> *DeRose et at patent does not disclose, teach or suggest the features recited in the independent claims of the list or outline being manipulable by a user to alter the content of the content object without manipulating the content entities identified by the content entity identifiers. Rather, the DeRose et al patent discloses that the element directory (which the Examiner construes as the list or outline) is generated from an electronic document markup file indicating the document content (See Column 5, lines 46 - 58; Column 9, lines 10 - 20; and Column 12, lines 51 - 58) to provide a fixed representation of that content for document navigation, rendering and/or indexing purposes (See Column 5, lines 21 -22; Column 9, lines 17 - 20; and Column 12, lines 54 - 56). Accordingly, the element directory is not manipulable by a user and does not facilitate alteration of document content as recited in the claims.*

Examiner respectfully traverses because:

DeRose further discloses: a document having descriptive markup of FIG. 4 may be parsed, and an element directory 91 as in FIG. 6, be generated. This element directory may then be used to traverse the document, since, for each element, the parent element, sibling elements, child elements, and previous elements may be readily accessed in constant time. Such navigation is helpful for combining rendering of the document, full text indexing, generating a table of contents, and creating annotations, bookmarks and history logs. Moreover, since an entry in the element directory may be retrieved in constant time, the element directory and fully-qualified name table may be

stored and accessed efficiently on a random-access medium 34 such as a disk (Col. 12, lines 51-65). As shown in FIG. 10 is the method for retrieving and adding a selected word that uses the element directory 91 and the frequency record 152. In step 172, if it was determined that the entry for the variable "P" was not found in the frequency record, the appropriate entry 155 for the element identified by "P" is inserted into the frequency record 152. This insertion involves insuring that the frequency record is an ordered list sorted by element identifier. These relationships hold except for a system, which allows an electronic document to be edited and thus allows changes to the element directory to be made (Col. 13, line 55-Col. 14, line 26). A user may also be provided with the capability of making private and public annotations, bookmarks, history logs and directed paths, which are graphically illustrated in FIG. 22 as part of the document structure. Using such structures a reader of an electronic document may attach comments or other information to a document, create paths through a document. Such capability normally needs to be provided without modifying the documents being read, because a document may be on a read-only medium, or because a user may not have authority to modify the document, or because different users may be applying modifications to unconnected copies of the document and may wish to share such modifications (Col. 23, lines 54-67). Thus, by using the element directory 91 as an identifier file object containing a list of content entity identifiers, an authorized user could access an element of the document for modifying. This indicates ***list of content entity identifiers is manipulable by a user to alter content of the content object without manipulating the content entities identified by said content entity identifiers.***

Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. Claims 1-15 and 46-47 are rejected under 35 U.S.C. 101 because the claimed inventions are directed to non-statutory subject matter.

> As disclosed in MPEP, "Data structure" is "a physical or logical relationship among data elements, designed to support specific data manipulation functions." Claims to computer-related inventions that are clearly nonstatutory fall into the same general categories as nonstatutory claims in other arts, namely natural phenomena such as magnetism, and abstract ideas or laws of nature which constitute "descriptive material." Descriptive material can be characterized as either "functional descriptive material" or "nonfunctional descriptive material". In this context, "functional descriptive material" consists of data structures and computer programs which impart functionality when employed as a computer component. "Nonfunctional descriptive material" includes but is not limited to music, literary works and a compilation or mere arrangement of data. Both types of "descriptive material" are nonstatutory when claimed as descriptive material per se. Warmerdam, 33 F3d at 1360, 31 USPQ2d at 1759 (MPEP 2106 (IV) (B) (1)).

In particular, the claimed subject matter of claims 1-15, 46-47, especially claims 1 and 8 is a data structure, but there is no inter-relationship description between an identifier file object and a content file object within the data structure: ***an identifier file object containing a list of content entity identifiers defining the content of the content object; and a plurality of content file objects, each containing a content entity identified by one of the content entity identifiers contained in said list***, and ***an identifier file object containing an outline of containers and content entity identifiers defining the content and hierarchical***

structure of the content object; and a plurality of content file objects, each containing a content entity identified by one of the content entity identifiers contained in said list.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1-51 are rejected under 35 U.S.C. 103(a) as being unpatentable over DeRose et al. [USP 5,557,722].

Regarding to claim 1, DeRose teaches a system for indexing and rendering electronic documents, especially electronic books, having descriptive markup and hierarchical content (Col. 1, lines 10-20). Electronic documents include, but are not limited to, electronic books and operation manuals for large systems, such as for airplane maintenance, etc. The descriptive markup of an input document is interpretable as an ordered hierarchy of content objects. As shown in FIG. 3, a book has a plurality of elements, which may have a parent element, a first child element, a last child element, a left sibling element, and a right sibling element (Col. 7, line 59-Col. 8, line 25). As shown

in FIG. 6, the data structure element directory 91 is an array of element descriptors 90 is used to improve navigation of a document. Each element descriptor 90 as ***a content entity*** represents an element of the document as ***the content object***. The element descriptor 90 includes a field 92 for representing the parent of the element, a field 94 for representing the first child, a field 96 for representing the last child, a field 98 for representing a left sibling, a field 100 for representing a right sibling, a field 102 for representing the type of the element, and a field 104 for representing the location of text characters for a text chunk or the location of other data associated with the element such as attributes. Those fields that represent elements, such as parent, child and sibling elements, preferably contain the element identifiers assigned to those elements (Col. 9, line 18-Col. 10, line 6). DeRose further discloses that the element directory 91 is created as ***a file object*** by an indexing process in the mass storage device 34 (Col. 10, lines 39-56). Thus, the element directory 91, and the process of creating the data structure indicate ***an identifier file object containing a list of content entity identifiers defining the content of the content object***. DeRose does not explicitly teach ***a plurality of content file objects, each containing a content entity identified by one of the content entity identifiers contained in said list; wherein said list of content entity identifiers is manipulable by a user to alter content of the content object without manipulating the content entities identified by said content entity identifiers***. However, as shown in FIG. 6, field 104 represents the location of text characters for a text chunk or the location of other data associated with the element such as attributes by using a pointer (Col. 9, lines 20-37). As shown in FIG. 8, the process of text chunk begins at step 141 to determine whether

the next token is a text chunk. A new element descriptor 90 for the text chunk in the element directory 91 is created at step 142 and the type name for the text chunk is also stored, type name may be reserved name, such as "#TEXT". The text of the text chunk as ***content entity*** is then saved in the open text file in the mass storage device 34, and its location in the text file is recorded in location field 104 of the element descriptor 90 for this text chunk at step 146, the variable EID is incremented in step 148 (Col. 10, lines 39-56 and Col. 12, lines 10-46). Thus, with a unique type names of each text chunk in a document, each text chunk for a unique element descriptor 90 and each pointer for referencing a particular text chunk, a text chunk is written into the open text file in the storage device as a text file object, and the process of creating the text chunks with the texts of each text chunk as content entity indicates ***a plurality of content file objects, each containing a content entity identified by one of the content entity identifiers contained in said list***. DeRose further discloses: a document having descriptive markup of FIG. 4 may be parsed, and an element directory 91 as in FIG. 6, be generated. This element directory may then be used to traverse the document, since, for each element, the parent element, sibling elements, child elements, and previous elements may be readily accessed in constant time. Such navigation is helpful for combining rendering of the document, full text indexing, generating a table of contents, and creating annotations, bookmarks and history logs. Moreover, since an entry in the element directory may be retrieved in constant time, the element directory and fully-qualified name table may be stored and accessed efficiently on a random-access medium 34 such as a disk (Col. 12, lines 51-65). As shown in FIG. 10 is the method for retrieving and adding a selected

word that uses the element directory 91 and the frequency record 152. In step 172, if it was determined that the entry for the variable "P" was not found in the frequency record, the appropriate entry 155 for the element identified by "P" is inserted into the frequency record 152. This insertion involves insuring that the frequency record is an ordered list sorted by element identifier. These relationships hold except for a system, which allows an electronic document to be edited and thus allows changes to the element directory to be made (Col. 13, line 55-Col. 14, line 26). A user may also be provided with the capability of making private and public annotations, bookmarks, history logs and directed paths, which are graphically illustrated in FIG. 22 as part of the document structure. Using such structures a reader of an electronic document may attach comments or other information to a document, create paths through a document. Such capability normally needs to be provided without modifying the documents being read, because a document may be on a read-only medium, or because a user may not have authority to modify the document, or because different users may be applying modifications to unconnected copies of the document and may wish to share such modifications (Col. 23, lines 54-67). Thus, by using the element directory 91 as an identifier file object containing a list of content entity identifiers, an authorized user could access an element of the document for modifying. This indicates ***list of content entity identifiers is manipulable by a user to alter content of the content object without manipulating the content entities identified by said content entity identifiers***. Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to modify the DeRose process to have a plurality of content file objects, and list of content

entity is manipulable for altering the content of the content object, and by having a plurality of content file objects, and list of content entity, an electric document such as electric book could be navigated, indexed and modified in accordance with its contents.

Regarding to claim 2, DeRose teaches all the claimed subject matters as discussed in claim 1, and further discloses: ***an attribute file object containing at least one attribute pertaining to the content object*** (Fig. 6, Col. 9, lines 21-23 and Col. 10, lines 39-56).

Regarding to claim 3, DeRose teaches all the claimed subject matters as discussed in claim 1, DeRose further discloses: ***at least one attribute is extracted from the content object*** (Col. 9, lines 21-37).

Regarding to claim 4, DeRose teaches all the claimed subject matters as discussed in claim 1, but fails to disclose: ***ones of the content entities further comprise components associated with the content object, and said file structure further comprises one or more associated component file objects***. However, as shown in Fig. 3, the body 50 of book 52 comprises an art work 64 that associated with book 52 as the content object. DeRose further discloses: some of the tags in the descriptive markup of the document may also be empty tags such as tag 49 (FIG. 4). Such empty tags may be used for cross-referencing, referencing other documents, or for referencing graphic or other types of non-text information, etc. These tags often have attributes, which are variables,

such as "file", to which are assigned values, such as "myfig12" (Col. 8, lines 61-67). This indicates ones of the content entities further comprise components associated with the content object, and further comprising one or more associated component file objects. Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to modify the DeRose method to include the technique of storing each associated component as a file object in order to format an electric document such as electric book in accordance with its non-text information such as image file.

Regarding to claim 5, DeRose teaches all the claimed subject matters as discussed in claim 1, DeRose further discloses: ***the content object is one of a book, a collection of images, an album, and a video*** (Col. 7, lines 59-64).

Regarding to claim 6, DeRose teaches all the claimed subject matters as discussed in claim 1, DeRose further discloses: ***the content object is a book and ones of the content entities are one of volumes, chapters and sections*** (Col. 7, lines 59-64).

Regarding to claim 7, DeRose teaches all the claimed subject matters as discussed in claim 4, DeRose further discloses: ***at least one of the associated components comprises an image*** (Col. 8, lines 18-25).

Regarding to claim 8, DeRose teaches a system for indexing and rendering electronic documents, especially electronic books, having descriptive markup and hierarchical content (Col. 1, lines 10-20). Electronic documents include, but are not limited to, electronic books and operation manuals for large systems, such as for airplane maintenance, etc. The descriptive markup of an input document is interpretable as an ordered hierarchy of content objects. As shown in FIG. 3, a book has a plurality of elements, which may have a parent element, a first child element, a last child element, a left sibling element, and a right sibling element (Col. 7, line 59-Col. 8, line 25). As shown in FIG. 6, the data structure element directory 91 is an array of element descriptors 90 is used to improve navigation of a document. Each element descriptor 90 as ***a content entity*** represents an element of the document as ***the content object***. The element descriptor 90 includes a field 92 for representing the parent of the element, a field 94 for representing the first child, a field 96 for representing the last child, a field 98 for representing a left sibling, a field 100 for representing a right sibling, a field 102 for representing the type of the element, and a field 104 for representing the location of text characters for a text chunk or the location of other data associated with the element such as attributes. Those fields that represent elements, such as parent, child and sibling elements, preferably contain the element identifiers assigned to those elements (Col. 9, line 18-Col. 10, line 6). DeRose further discloses that the element directory 91 is created as ***a file object*** by an indexing process in the mass storage device 34 (Col. 10, lines 39-56). Thus, the element directory 91, and the process of creating the data structure indicate ***an identifier file object containing an outline of containers and content***

entity identifiers defining the content and hierarchical structure of the content object. DeRose does not explicitly teach ***a plurality of content file objects, each containing a content entity identified by one of the content entity identifiers contained in said list; wherein said list of content entity identifiers is manipulable by a user to alter content of the content object without manipulating the content entities identified by said content entity identifiers.*** However, as shown in FIG. 6, field 104 represents the location of text characters for a text chunk or the location of other data associated with the element such as attributes by using a pointer (Col. 9, lines 20-37). As shown in FIG. 8, the process of text chunk begins at step 141 to determine whether the next token is a text chunk. A new element descriptor 90 for the text chunk in the element directory 91 is created at step 142 and the type name for the text chunk is also stored, type name may be reserved name, such as "#TEXT". The text of the text chunk as ***content entity*** is then saved in the open text file in the mass storage device 34, and its location in the text file is recorded in location field 104 of the element descriptor 90 for this text chunk at step 146, the variable EID is incremented in step 148 (Col. 10, lines 39-56 and Col. 12, lines 10-46). Thus, with a unique type names of each text chunk in a document, each text chunk for a unique element descriptor 90 and each pointer for referencing a particular text chunk, a text chunk is written into the open text file in the storage device as a text file object, and the process of creating the text chunks with the texts of each text chunk as content entity indicates ***a plurality of content file objects, each containing a content entity identified by one of the content entity identifiers contained in said outline.*** DeRose further discloses: a document having descriptive markup of FIG. 4 may be parsed, and an element directory

91 as in FIG. 6, be generated. This element directory may then be used to traverse the document, since, for each element, the parent element, sibling elements, child elements, and previous elements may be readily accessed in constant time. Such navigation is helpful for combining rendering of the document, full text indexing, generating a table of contents, and creating annotations, bookmarks and history logs. Moreover, since an entry in the element directory may be retrieved in constant time, the element directory and fully-qualified name table may be stored and accessed efficiently on a random-access medium 34 such as a disk (Col. 12, lines 51-65). As shown in FIG. 10 is the method for retrieving and adding a selected word that uses the element directory 91 and the frequency record 152. In step 172, if it was determined that the entry for the variable "P" was not found in the frequency record, the appropriate entry 155 for the element identified by "P" is inserted into the frequency record 152. This insertion involves insuring that the frequency record is an ordered list sorted by element identifier. These relationships hold except for a system, which allows an electronic document to be edited and thus allows changes to the element directory to be made (Col. 13, line 55-Col. 14, line 26). A user may also be provided with the capability of making private and public annotations, bookmarks, history logs and directed paths, which are graphically illustrated in FIG. 22 as part of the document structure. Using such structures a reader of an electronic document may attach comments or other information to a document, create paths through a document. Such capability normally needs to be provided without modifying the documents being read, because a document may be on a read-only medium, or because a user may not have authority to

modify the document, or because different users may be applying modifications to unconnected copies of the document and may wish to share such modifications (Col. 23, lines 54-67). Thus, by using the element directory 91 as an identifier file object containing a list of content entity identifiers, an authorized user could access an element of the document for modifying. This indicates ***outline is manipulable by a user to alter content of the content object without manipulating the content entities identified by said content entity identifiers***. Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to modify the DeRose process to have a plurality of content file objects, and outline is manipulable for altering the content of the content object, and by having a plurality of content file objects, and a manipulable outline, an electric document such as electric book could be navigated, indexed and modified in accordance with its contents.

Regarding to claim 9, DeRose teaches all the claimed subject matters as discussed in claim 8, and further discloses: ***an attribute file object containing at least one attribute pertaining to the content object*** (Fig. 6, Col. 9, lines 21-23 and Col. 10, lines 39-56).

Regarding to claim 10, DeRose teaches all the claimed subject matters as discussed in claim 8, DeRose further discloses: ***at least one attribute is extracted from the content object*** (Col. 9, lines 21-37).

Regarding to claim 11, DeRose teaches all the claimed subject matters as discussed in claim 8, but fails to disclose: ***ones of the content entities further comprise components associated with the content object, and said file structure further comprises one or more associated component file objects***. However, as shown in Fig. 3, the body 50 of book 52 comprises an artwork 64 that associated with book 52 as the content object. DeRose further discloses: some of the tags in the descriptive markup of the document may also be empty tags such as tag 49 (FIG. 4). Such empty tags may be used for cross-referencing, referencing other documents, or for referencing graphic or other types of non-text information, etc. These tags often have attributes, which are variables, such as "file", to which are assigned values, such as "myfig12" (Col. 8, lines 61-67). This indicates ones of the content entities further comprise components associated with the content object, and further comprising one or more associated component file objects. Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to modify the DeRose method to include the technique of storing each associated component as a file object in order to format an electric document such as electric book in accordance with its non-text information such as image file.

Regarding to claim 12, DeRose teaches all the claimed subject matters as discussed in claim 8, DeRose further discloses: ***the content object is one of a book, a collection of images, an album, and a video*** (Col. 7, lines 59-64).

Regarding to claim 13, DeRose teaches all the claimed subject matters as discussed in claim 8, DeRose further discloses: ***the content object is a book and ones of the containers are one of books, volumes and a chapters*** (Col. 7, lines 59-64).

Regarding to claim 14, DeRose teaches all the claimed subject matters as discussed in claim 8, DeRose further discloses: ***the content object is a book and ones of the content entities are one of volumes, chapters and sections*** (Col. 7, lines 59-64).

Regarding to claim 15, DeRose teaches all the claimed subject matters as discussed in claim 11, DeRose further discloses: ***at least one of the associated components comprises an image*** (Col. 8, lines 18-25).

Regarding to claims 16 and 31, DeRose teaches a method, and a program of instruction for indexing and rendering electronic documents, especially electronic books, having descriptive markup and hierarchical content (Col. 1, lines 10-20). Electronic documents include, but are not limited to, electronic books and operation manuals for large systems, such as for airplane maintenance, etc. The descriptive markup of an input document is interpretable as an ordered hierarchy of content objects. As shown in FIG. 3, a book has a plurality of elements, which may have a parent element, a first child element, a last child element, a left sibling element, and a right sibling element (Col. 7, line 59-Col. 8, line 25). As shown in FIG. 6, the data structure element directory 91 is an array of element descriptors 90 is used to improve navigation of a document.

Each element descriptor 90 as ***a content entity*** represents an element of the document as ***the content object***. The element descriptor 90 includes a field 92 for representing the parent of the element, a field 94 for representing the first child, a field 96 for representing the last child, a field 98 for representing a left sibling, a field 100 for representing a right sibling, a field 102 for representing the type of the element, and a field 104 for representing the location of text characters for a text chunk or the location of other data associated with the element such as attributes. Those fields that represent elements, such as parent, child and sibling elements, preferably contain the element identifiers assigned to those elements (Col. 9, line 18-Col. 10, line 6). DeRose further discloses that the element directory 91 is created as ***a file object*** by an indexing process in the mass storage device 34 (Col. 10, lines 39-56). Thus, the element directory 91, and the process of creating the data structure indicate the step of ***storing a list of content entity identifiers defining the content of the content object within an identifier file object***. DeRose does not explicitly teach the steps of ***storing the content entity identified by the content entity identifiers within a plurality of content file objects, with each content file object containing a content entity identified by one of the content entity identifiers contained in said list; and enabling manipulation of said list of content entity identifiers by a user to alter content of the content object without manipulating the content entities identified by said content entity identifiers***. However, as shown in FIG. 6, field 104 represents the location of text characters for a text chunk or the location of other data associated with the element such as attributes by using a pointer (Col. 9, lines 20-37). As shown in FIG. 8, the process of text chunk begins at step 141 to determine whether the next token is a

text chunk. A new element descriptor 90 for the text chunk in the element directory 91 is created at step 142 and the type name for the text chunk is also stored, type name may be reserved name, such as "#TEXT". The text of the text chunk as ***content entity*** is then saved in the open text file in the mass storage device 34, and its location in the text file is recorded in location field 104 of the element descriptor 90 for this text chunk at step 146, the variable EID is incremented in step 148 (Col. 10, lines 39-56 and Col. 12, lines 10-46). Thus, with a unique type names of each text chunk in a document, each text chunk for a unique element descriptor 90 and each pointer for referencing a particular text chunk, a text chunk is written into the open text file in the storage device as a text file object, and the process of creating the text chunks with the texts of each text chunk as content entity indicates the step of ***storing the content entity identified by the content entity identifiers within a plurality of content file objects, with each content file object containing a content entity identified by one of the content entity identifiers contained in said list***. DeRose further discloses: a document having descriptive markup of FIG. 4 may be parsed, and an element directory 91 as in FIG. 6, be generated. This element directory may then be used to traverse the document, since, for each element, the parent element, sibling elements, child elements, and previous elements may be readily accessed in constant time. Such navigation is helpful for combining rendering of the document, full text indexing, generating a table of contents, and creating annotations, bookmarks and history logs. Moreover, since an entry in the element directory may be retrieved in constant time, the element directory and fully-qualified name table may be stored and accessed efficiently on a random-access medium 34 such as a disk (Col. 12,

lines 51-65). As shown in FIG. 10 is the method for retrieving and adding a selected word that uses the element directory 91 and the frequency record 152. In step 172, if it was determined that the entry for the variable "P" was not found in the frequency record, the appropriate entry 155 for the element identified by "P" is inserted into the frequency record 152. This insertion involves insuring that the frequency record is an ordered list sorted by element identifier. These relationships hold except for a system, which allows an electronic document to be edited and thus allows changes to the element directory to be made (Col. 13, line 55-Col. 14, line 26). A user may also be provided with the capability of making private and public annotations, bookmarks, history logs and directed paths, which are graphically illustrated in FIG. 22 as part of the document structure. Using such structures a reader of an electronic document may attach comments or other information to a document, create paths through a document. Such capability normally needs to be provided without modifying the documents being read, because a document may be on a read-only medium, or because a user may not have authority to modify the document, or because different users may be applying modifications to unconnected copies of the document and may wish to share such modifications (Col. 23, lines 54-67). Thus, by using the element directory 91 as an identifier file object containing a list of content entity identifiers, an authorized user could access an element of the document for modifying. This indicates the step of ***enabling manipulation of said list of content entity identifiers by a user to alter content of the content object without manipulating the content entities identified by said content entity identifiers.*** Therefore, it would have been obvious for one of ordinary skill in the art at the time the

invention was made to modify the DeRose process to have a plurality of content file objects, and list of content entity is manipulable for altering the content of the content object, and by having a plurality of content file objects, and list of content entity, an electric document such as electric book could be navigated, indexed and modified in accordance with its contents.

Regarding to claim 17, DeRose teaches all the claimed subject matters as discussed in claim 16, and further discloses the step of ***storing at least one attribute pertaining to the content object in an attribute file object*** (Fig. 6, Col. 9, lines 21-23 and Col. 10, lines 39-56).

Regarding to claim 18, DeRose teaches all the claimed subject matters as discussed in claim 16, DeRose further discloses: ***at least one attribute is extracted from the content object*** (Col. 9, lines 21-37).

Regarding to claim 19, DeRose teaches all the claimed subject matters as discussed in claim 16, but fails to disclose: ***ones of the content entities further comprise components associated with the content object, and further comprising the step of storing the components in one or more associated component file objects***. However, as shown in Fig. 3, the body 50 of book 52 comprises an artwork 64 that associated with book 52 as the content object. DeRose further discloses: some of the tags in the descriptive markup of the document may also be empty tags such as tag 49 (FIG. 4). Such empty tags may be

used for cross-referencing, referencing other documents, or for referencing graphic or other types of non-text information, etc. These tags often have attributes, which are variables, such as "file", to which are assigned values, such as "myfig12" (Col. 8, lines 61-67). This indicates ones of the content entities further comprise components associated with the content object, and further comprising one or more associated component file objects. Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to modify the DeRose method to include the technique of storing each associated component as a file object in order to format an electric document such as electric book in accordance with its non-text information such as image file.

Regarding to claim 20, DeRose teaches all the claimed subject matters as discussed in claim 16, DeRose further discloses: ***the content object is one of a book, a collection of images, an album, and a video*** (Col. 7, lines 59-64).

Regarding to claim 21, DeRose teaches all the claimed subject matters as discussed in claim 16, DeRose further discloses: ***the content object is a book and ones of the content entities are one of volumes, chapters and sections*** (Col. 7, lines 59-64).

Regarding to claim 22, DeRose teaches all the claimed subject matters as discussed in claim 19, DeRose further discloses: ***at least one of the associated components comprises one of an image*** (Col. 8, lines 18-25). DeRose fails to teach ***the associated***

component comprises a video segment, and an audio segment. However, DeRose teaches that a document may also include other types of elements and artwork elements may be used to point to non-text objects (Col. 8, lines 18-25). This indicates the associated component could be a video segment or an audio segment. Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to modify the DeRose method to include video and audio segment as the associated component in order to format an electric document such as electric book in accordance with its non-text information such as video or audio file.

Regarding to claims 23 and 38, DeRose teaches a method, and a program of instruction for indexing and rendering electronic documents, especially electronic books, having descriptive markup and hierarchical content (Col. 1, lines 10-20). Electronic documents include, but are not limited to, electronic books and operation manuals for large systems, such as for airplane maintenance, etc. The descriptive markup of an input document is interpretable as an ordered hierarchy of content objects. As shown in FIG. 3, a book has a plurality of elements, which may have a parent element, a first child element, a last child element, a left sibling element, and a right sibling element (Col. 7, line 59-Col. 8, line 25). As shown in FIG. 6, the data structure element directory 91 is an array of element descriptors 90 is used to improve navigation of a document. Each element descriptor 90 as ***a content entity*** represents an element of the document as ***the content object***. The element descriptor 90 includes a field 92 for representing the parent of the element, a field 94 for representing the first child, a field 96 for

representing the last child, a field 98 for representing a left sibling, a field 100 for representing a right sibling, a field 102 for representing the type of the element, and a field 104 for representing the location of text characters for a text chunk or the location of other data associated with the element such as attributes. Those fields that represent elements, such as parent, child and sibling elements, preferably contain the element identifiers assigned to those elements (Col. 9, line 18-Col. 10, line 6). DeRose further discloses that the element directory 91 is created as ***a file object*** by an indexing process in the mass storage device 34 (Col. 10, lines 39-56). Thus, the element directory 91, and the process of creating the data structure indicate the step of ***storing an outline of containers and content entity identifiers defining the content and hierarchical structure of the content object within an identifier file object***. DeRose does not explicitly teach the steps of ***storing the content entity identified by the content entity identifiers within a plurality of content file objects, with each content file object containing a content entity identified by one of the content entity identifiers contained in said outline; and enabling manipulation of said outline by a user to alter content of the content object without manipulating the content entities identified by said content entity identifiers***. However, as shown in FIG. 6, field 104 represents the location of text characters for a text chunk or the location of other data associated with the element such as attributes by using a pointer (Col. 9, lines 20-37). As shown in FIG. 8, the process of text chunk begins at step 141 to determine whether the next token is a text chunk. A new element descriptor 90 for the text chunk in the element directory 91 is created at step 142 and the type name for the text chunk is also stored, type name may be reserved name, such as "#TEXT". The text of the text chunk

as ***content entity*** is then saved in the open text file in the mass storage device 34, and its location in the text file is recorded in location field 104 of the element descriptor 90 for this text chunk at step 146, the variable EID is incremented in step 148 (Col. 10, lines 39-56 and Col. 12, lines 10-46). Thus, with a unique type names of each text chunk in a document, each text chunk for a unique element descriptor 90 and each pointer for referencing a particular text chunk, a text chunk is written into the open text file in the storage device as a text file object, and the process of creating the text chunks with the texts of each text chunk as content entity indicates the step of ***storing the content entity identified by the content entity identifiers within a plurality of content file objects, with each content file object containing a content entity identified by one of the content entity identifiers contained in said outline***. DeRose further discloses: a document having descriptive markup of FIG. 4 may be parsed, and an element directory 91 as in FIG. 6, be generated. This element directory may then be used to traverse the document, since, for each element, the parent element, sibling elements, child elements, and previous elements may be readily accessed in constant time. Such navigation is helpful for combining rendering of the document, full text indexing, generating a table of contents, and creating annotations, bookmarks and history logs. Moreover, since an entry in the element directory may be retrieved in constant time, the element directory and fully-qualified name table may be stored and accessed efficiently on a random-access medium 34 such as a disk (Col. 12, lines 51-65). As shown in FIG. 10 is the method for retrieving and adding a selected word that uses the element directory 91 and the frequency record 152. In step 172, if it was determined that the entry for the variable "P"

was not found in the frequency record, the appropriate entry 155 for the element identified by "P" is inserted into the frequency record 152. This insertion involves insuring that the frequency record is an ordered list sorted by element identifier. These relationships hold except for a system, which allows an electronic document to be edited and thus allows changes to the element directory to be made (Col. 13, line 55-Col. 14, line 26). A user may also be provided with the capability of making private and public annotations, bookmarks, history logs and directed paths, which are graphically illustrated in FIG. 22 as part of the document structure. Using such structures a reader of an electronic document may attach comments or other information to a document, create paths through a document. Such capability normally needs to be provided without modifying the documents being read, because a document may be on a read-only medium, or because a user may not have authority to modify the document, or because different users may be applying modifications to unconnected copies of the document and may wish to share such modifications (Col. 23, lines 54-67). Thus, by using the element directory 91 as an identifier file object containing a list of content entity identifiers, an authorized user could access an element of the document for modifying. This indicates the step of ***enabling manipulation of said outline by a user to alter content of the content object without manipulating the content entities identified by said content entity identifiers***. Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to modify the DeRose process to have a plurality of content file objects, and list of content entity is manipulable for altering the content of the content object, and by having a plurality of content file objects, and list of

content entity, an electric document such as electric book could be navigated, indexed and modified in accordance with its contents.

Regarding to claim 24, DeRose teaches all the claimed subject matters as discussed in claim 23, and further discloses: ***storing at least one attribute pertaining to the content object within an attribute file object*** (Fig. 6, Col. 9, lines 21-23 and Col. 10, lines 39-56).

Regarding to claim 25, DeRose teaches all the claimed subject matters as discussed in claim 23, DeRose further discloses: ***at least one attribute is extracted from the content object*** (Col. 9, lines 21-37).

Regarding to claim 26, DeRose teaches all the claimed subject matters as discussed in claim 23, but fails to disclose: ***ones of the content entities further comprise components associated with the content object, and further comprising the step of storing the component in one or more associated component file objects***. However, as shown in Fig. 3, the body 50 of book 52 comprises an artwork 64 that associated with book 52 as the content object. DeRose further discloses: some of the tags in the descriptive markup of the document may also be empty tags such as tag 49 (FIG. 4). Such empty tags may be used for cross-referencing, referencing other documents, or for referencing graphic or other types of non-text information, etc. These tags often have attributes, which are variables, such as "file", to which are assigned values, such as "myfig12" (Col. 8, lines

61-67). This indicates ones of the content entities further comprise components associated with the content object, and further comprising one or more associated component file objects. Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to modify the DeRose method to include the technique of storing each associated component as a file object in order to format an electric document such as electric book in accordance with its non-text information such as image file.

Regarding to claim 27, DeRose teaches all the claimed subject matters as discussed in claim 23, DeRose further discloses: ***the content object is one of a book, a collection of images, an album, and a video*** (Col. 7, lines 59-64).

Regarding to claim 28, DeRose teaches all the claimed subject matters as discussed in claim 23, DeRose further discloses: ***the content object is a book and ones of the containers are one of books, volumes and a chapter*** (Col. 7, lines 59-64).

Regarding to claim 29, DeRose teaches all the claimed subject matters as discussed in claim 23, DeRose further discloses: ***the content object is a book and ones of the content entities are one of volumes, chapters and sections*** (Col. 7, lines 59-64).

Regarding to claim 30, DeRose teaches all the claimed subject matters as discussed in claim 26, DeRose further discloses: ***at least one of the associated components***

comprises one of an image (Col. 8, lines 18-25). DeRose fails to teach ***the associated component comprises a video segment and an audio segment.*** However, DeRose teaches that a document may also include other types of elements and artwork elements may be used to point to non-text objects (Col. 8, lines 18-25). This indicates the associated component could be a video segment or an audio segment. Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to modify the DeRose method to include video and audio segment as the associated component in order to format an electric document such as electric book in accordance with its non-text information such as video or audio file.

Regarding to claim 32, DeRose teaches all the claimed subject matters as discussed in claim 31, and further discloses: ***creating an attribute file object containing at least one attribute pertaining to the content object*** (Fig. 6, Col. 9, lines 21-23 and Col. 10, lines 39-56).

Regarding to claim 33, DeRose teaches all the claimed subject matters as discussed in claim 31, DeRose further discloses: ***at least one attribute is extracted from the content object*** (Col. 9, lines 21-37).

Regarding to claim 34, DeRose teaches all the claimed subject matters as discussed in claim 31, but fails to disclose: ***ones of the content entities further comprise components associated with the content object,*** and further comprising the step of ***creating***

one or more associated component file objects. However, as shown in Fig. 3, the body 50 of book 52 comprises an artwork 64 that associated with book 52 as the content object. DeRose further discloses: some of the tags in the descriptive markup of the document may also be empty tags such as tag 49 (FIG. 4). Such empty tags may be used for cross-referencing, referencing other documents, or for referencing graphic or other types of non-text information, etc. These tags often have attributes, which are variables, such as "file", to which are assigned values, such as "myfig12" (Col. 8, lines 61-67). This indicates ones of the content entities further comprise components associated with the content object, and further comprising one or more associated component file objects. Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to modify the DeRose method to include the technique of storing each associated component as a file object in order to format an electric document such as electric book in accordance with its non-text information such as image file.

Regarding to claim 35, DeRose teaches all the claimed subject matters as discussed in claim 31, DeRose further discloses: ***the content object is one of a book, a collection of images, an album, and a video*** (Col. 7, lines 59-64).

Regarding to claim 36, DeRose teaches all the claimed subject matters as discussed in claim 31, DeRose further discloses: ***the content object is a book and ones of the content entities are one of volumes, chapters and sections*** (Col. 7, lines 59-64).

Regarding to claim 37, DeRose teaches all the claimed subject matters as discussed in claim 34, DeRose further discloses: ***at least one of the associated components comprises an image*** (Col. 8, lines 18-25). DeRose fails to teach ***the associated component comprises a video segment and an audio segment.*** However, DeRose teaches that a document may also include other types of elements and artwork elements may be used to point to non-text objects (Col. 8, lines 18-25). This indicates the associated component could be a video segment or an audio segment. Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to modify the DeRose method to include video and audio segment as the associated component in order to format an electric document such as electric book in accordance with its non-text information such as video or audio file.

Regarding to claim 39, DeRose teaches all the claimed subject matters as discussed in claim 38, and further discloses: ***an attribute file object containing at least one attribute pertaining to the content object*** (Fig. 6, Col. 9, lines 21-23 and Col. 10, lines 39-56).

Regarding to claim 40, DeRose teaches all the claimed subject matters as discussed in claim 38, DeRose further discloses: ***at least one attribute is extracted from the content object*** (Col. 9, lines 21-37).

Regarding to claim 41, DeRose teaches all the claimed subject matters as discussed in claim 38, but fails to disclose: ***ones of the content entities further comprise components associated with the content object,*** and further comprising the step of ***creating one or more associated component file objects***. However, as shown in Fig. 3, the body 50 of book 52 comprises an artwork 64 that associated with book 52 as the content object. DeRose further discloses: some of the tags in the descriptive markup of the document may also be empty tags such as tag 49 (FIG. 4). Such empty tags may be used for cross-referencing, referencing other documents, or for referencing graphic or other types of non-text information, etc. These tags often have attributes, which are variables, such as "file", to which are assigned values, such as "myfig12" (Col. 8, lines 61-67). This indicates ones of the content entities further comprise components associated with the content object, and further comprising one or more associated component file objects. Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to modify the DeRose method to include the technique of storing each associated component as a file object in order to format an electric document such as electric book in accordance with its non-text information such as image file.

Regarding to claim 42, DeRose teaches all the claimed subject matters as discussed in claim 38, DeRose further discloses: ***the content object is one of a book, a collection of images, an album, and a video*** (Col. 7, lines 59-64).

Regarding to claim 43, DeRose teaches all the claimed subject matters as discussed in claim 38, DeRose further discloses: ***the content object is a book and ones of the containers are one of books, volumes and a chapter*** (Col. 7, lines 59-64).

Regarding to claim 44, DeRose teaches all the claimed subject matters as discussed in claim 38, DeRose further discloses: ***the content object is a book and ones of the content entities are one of volumes, chapters and sections*** (Col. 7, lines 59-64).

Regarding to claim 45, DeRose teaches all the claimed subject matters as discussed in claim 41, DeRose further discloses: ***at least one of the associated components comprises an one of an image*** (Col. 8, lines 18-25). DeRose fails to teach ***the associated component comprises a video segment and an audio segment***. However, DeRose teaches that a document may also include other types of elements and artwork elements may be used to point to non-text objects (Col. 8, lines 18-25). This indicates the associated component could be a video segment or an audio segment. Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to modify the DeRose method to include video and audio segment as the associated component in order to format an electric document such as electric book in accordance with its non-text information such as video or audio file.

Regarding to claim 46, DeRose teaches all the claimed subject matters as discussed in claim 1, DeRose further discloses: ***the content entity identifiers identify the content entities without specifying locations of the content entities*** (Col. 9, lines 20-37).

Regarding to claim 47, DeRose teaches all the claimed subject matters as discussed in claim 8, DeRose further discloses: ***the content entity identifiers include information to identify the content file object containing content entities associated with those identifiers*** (Col. 9, lines 20-37).

Regarding to claim 48, DeRose teaches all the claimed subject matters as discussed in claim 16, DeRose further discloses: ***the content entity identifiers include information to identify the content file objects containing content entities associated with those identifiers*** (Col. 9, lines 20-37).

Regarding to claim 49, DeRose teaches all the claimed subject matters as discussed in claim 23, DeRose further discloses: ***the content entity identifiers include information to identify the content file objects containing content entities associated with those identifiers*** (Col. 9, lines 20-37).

Regarding to claim 50, DeRose teaches all the claimed subject matters as discussed in claim 31, DeRose further discloses: ***the content entity identifiers include***

information to identify the content file objects containing content entities associated with those identifiers (Col. 9, lines 20-37).

Regarding to claim 51, DeRose teaches all the claimed subject matters as discussed in claim 38, DeRose further discloses: ***the content entity identifiers include information to identify the content file objects containing content entities associated with those identifiers*** (Col. 9, lines 20-37).

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung Pham whose telephone number is 703-605 4242. The examiner can normally be reached on Monday-Friday, 7:00 Am - 3:30 Pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, VU, KIM YEN can be reached on 703-305 4393. The fax phone numbers for the organization where this application or proceeding is assigned are 703-746 7239 for regular communications and 703-746 7238 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305 3900.

Examiner: Hung Pham
December 18, 2002

JEAN M. CORRIELUS
PRIMARY EXAMINER